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# **Leveraging IT Investment Management to Support Integration & Modernization While Controlling Investments**

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**Really ....**

# **How to Integrate EA and Investment Management to Better Select and Control Your Investments**

# Managing IT investments is tough business

- IT is no longer a support function
- About 2% of the budget, but one of the largest capital areas
- Leverages a huge portion of the other 98%

## And it is getting tougher ...

- Overall focus on improved efficiency and effectiveness
  - Reduce redundancy
  - Improve responsiveness
- High rate of failure has attracted spotlight
- New technology leads to new opportunities
- Cross agency systems to improve service to the citizen

# Challenges in IT Investment Management

- Selecting IT investments as investments, not as budget items
- Considering everything you spend is an investment
- Selecting based on organization's objectives rather than more narrow program objectives
- Selecting in the context of your existing system environment
- Managing for net benefits, not just cost and schedule
- Measuring contribution
- Continually improve investment process – know what you need

# Challenges in Enterprise Architecture Management

- Fostering top management understanding 50%
- Overcoming parochialism 47%
- Ensuring adequate funding 50%
- Obtaining skilled staff 49%

# How do you manage the challenges?

- Enterprise strategic planning
  - Develop the vision for the future by understanding your business and the environment
  - Input to the EA process
- Strong enterprise architecture
  - Know what you've got and where you are going
  - Develop sequencing plan to make the target real
- Strong investment management
  - Direct the sequencing plan implementation
  - Provide path for nearer-term proposals to rise through

## How it fits together

- Enterprise strategic planning describes the future state of the organization and informs the ....
- Enterprise architecture which describes where the organization is, where it is going, and how it intends to get there ....
- IT investment management
  - Moves the organization through the sequencing plan
  - Enables organization to respond to requirements not anticipated by EA

# Enterprise Architecture

**Defines where/what  
the enterprise is today**

## Baseline

- Describes the current state of the environment as-is picture



## Transition

- Technology migration strategies
- Project development initiatives
- Deployment plans



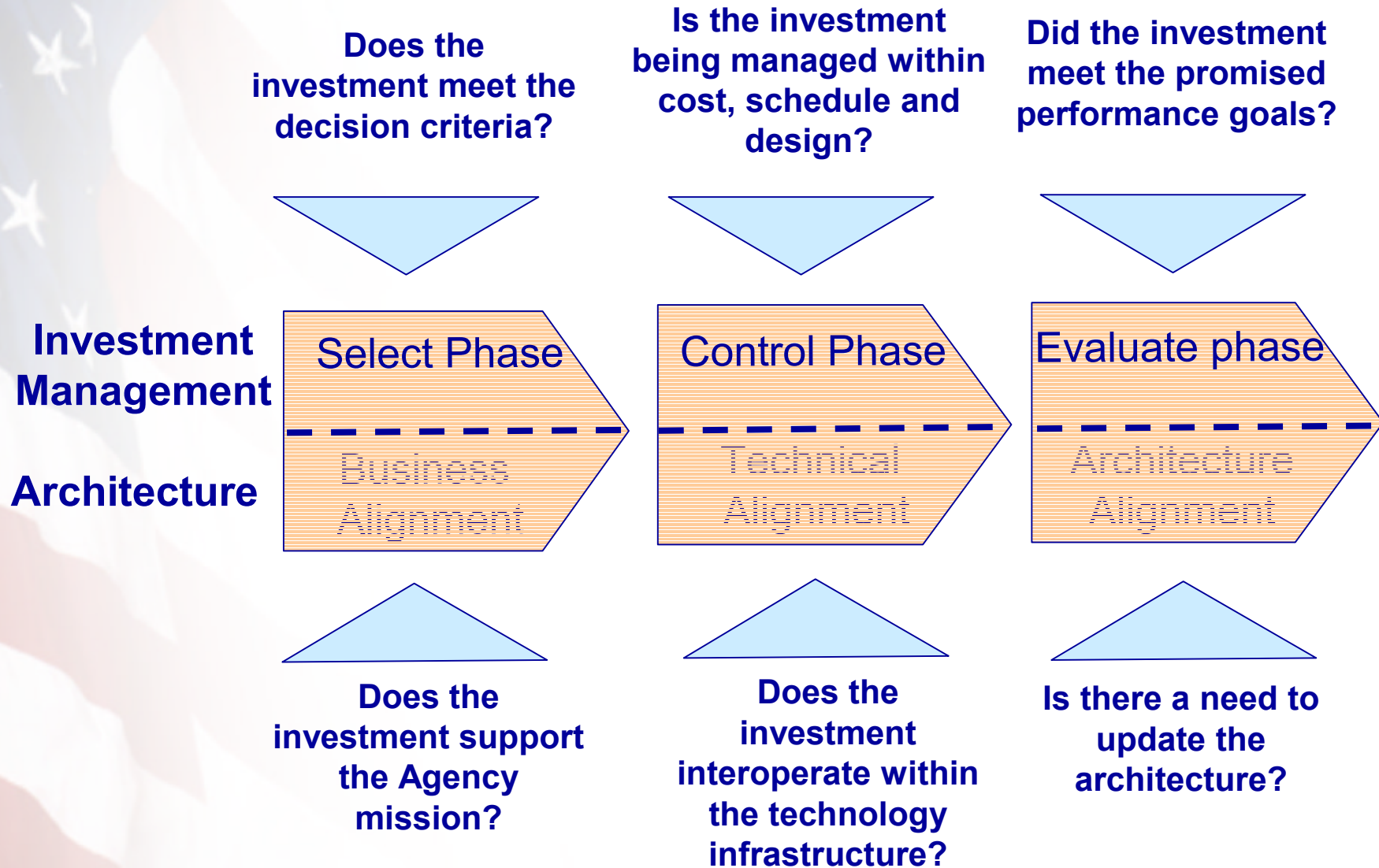
**..and where/how the  
Enterprise plans to  
change  
in future**

## Target

- Describes a planning state of the environment
- Presents “to-be” picture



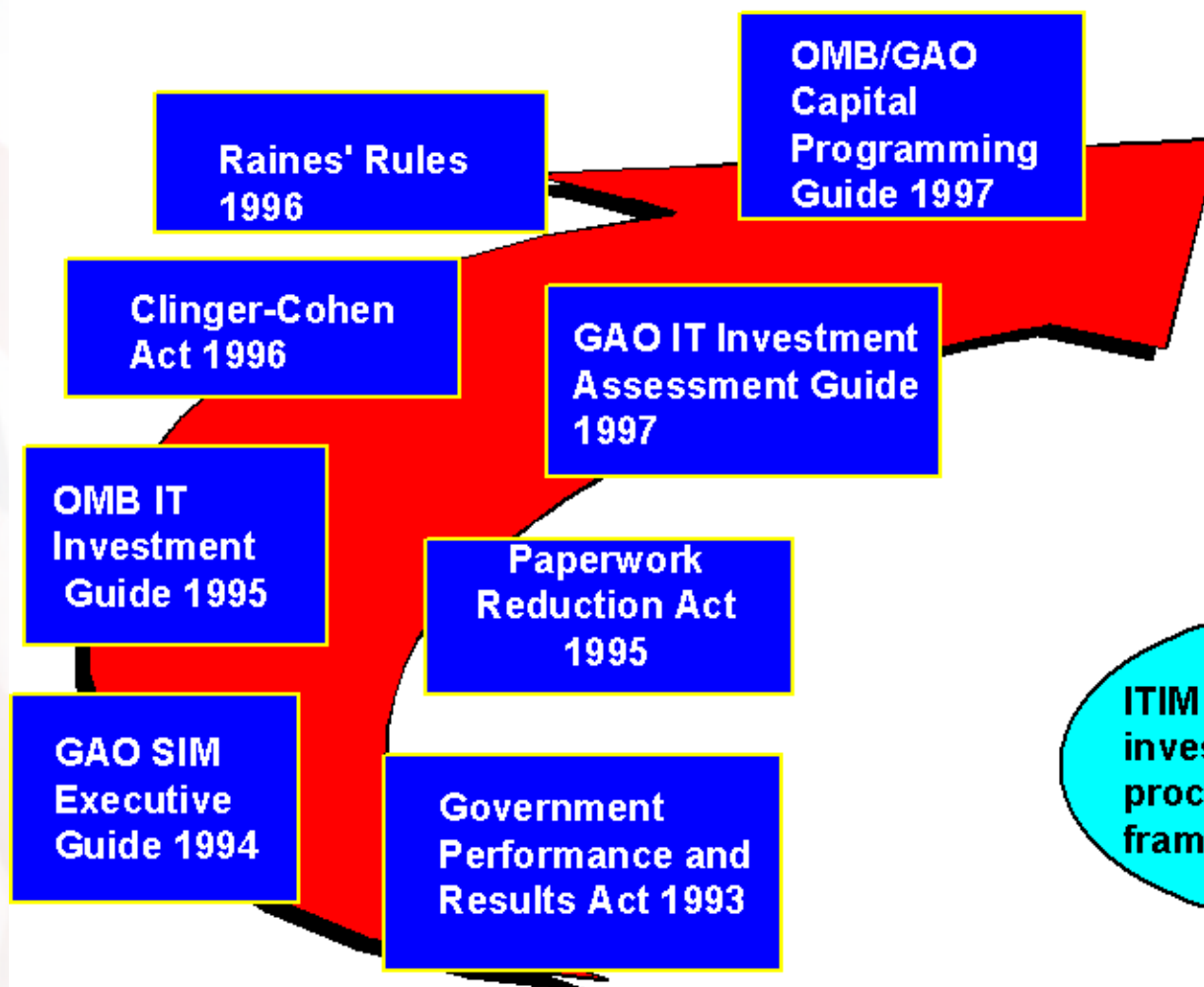
# The Investment Process



**All right, now let's get a little more specific**

## Let's talk frameworks

- IT Investment Management Framework (ITIM)
  - Version 1.1 released March, 2004
  - GAO-04-394G
- EA Management Maturity Framework (EAMMF)
  - Version 1.1 released April 2003
  - GAO-03-584G



## **GAO**

Information  
Technology  
Investment  
Management:  
A Framework for  
Assessing and  
Improving  
Process Maturity  
May 2000

**ITIM organizes the  
investment management  
processes into a maturity  
framework.**

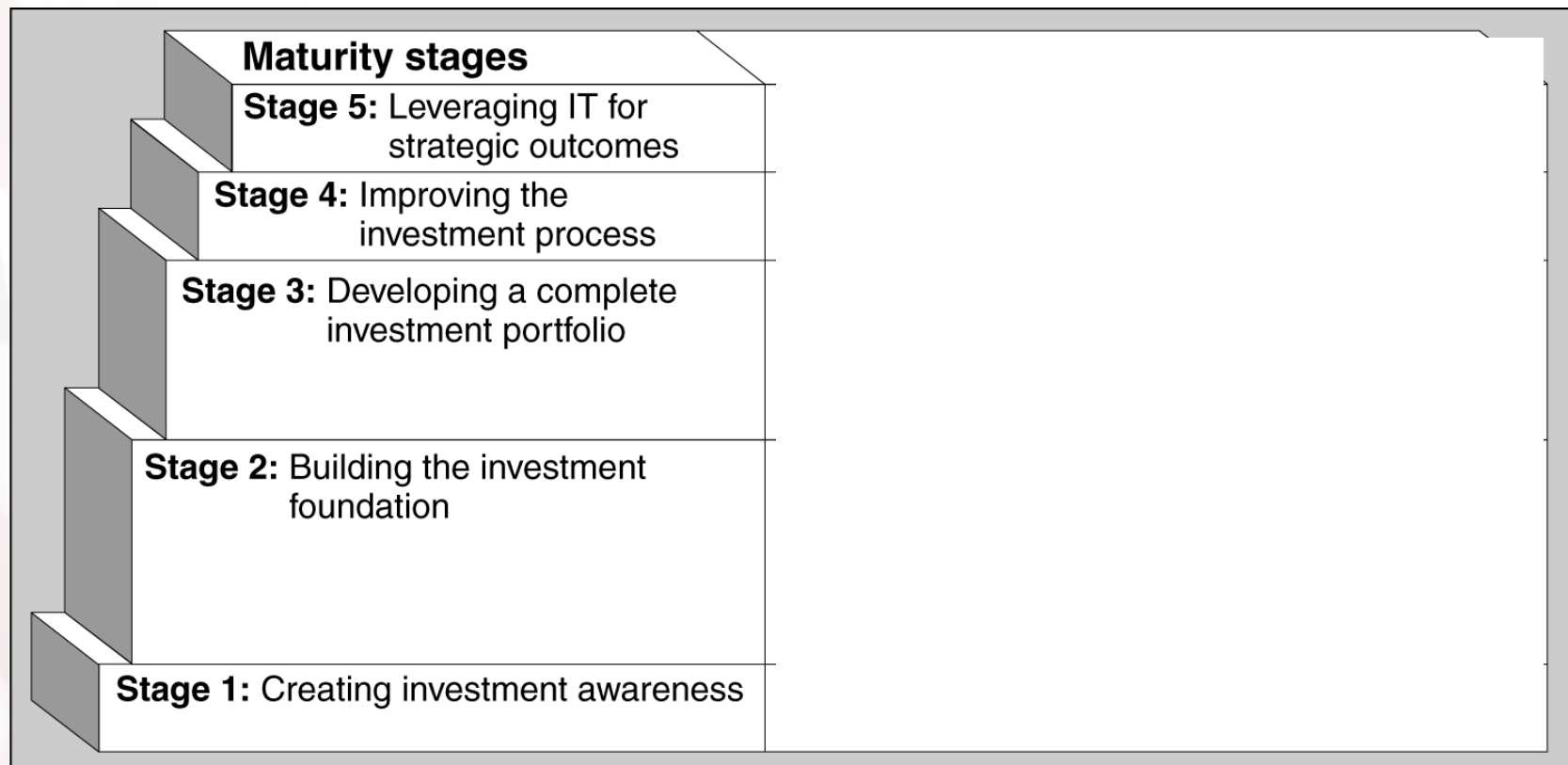
# What is the ITIM?

- Five stage maturity model
- Written for use in all agencies with appropriate interpretation
- Addresses process maturity for IT investment management
  - Generalizeable to investment decision making broadly
- Technology/implementation neutral
  - Choose your own implementation strategy

## How is it used?

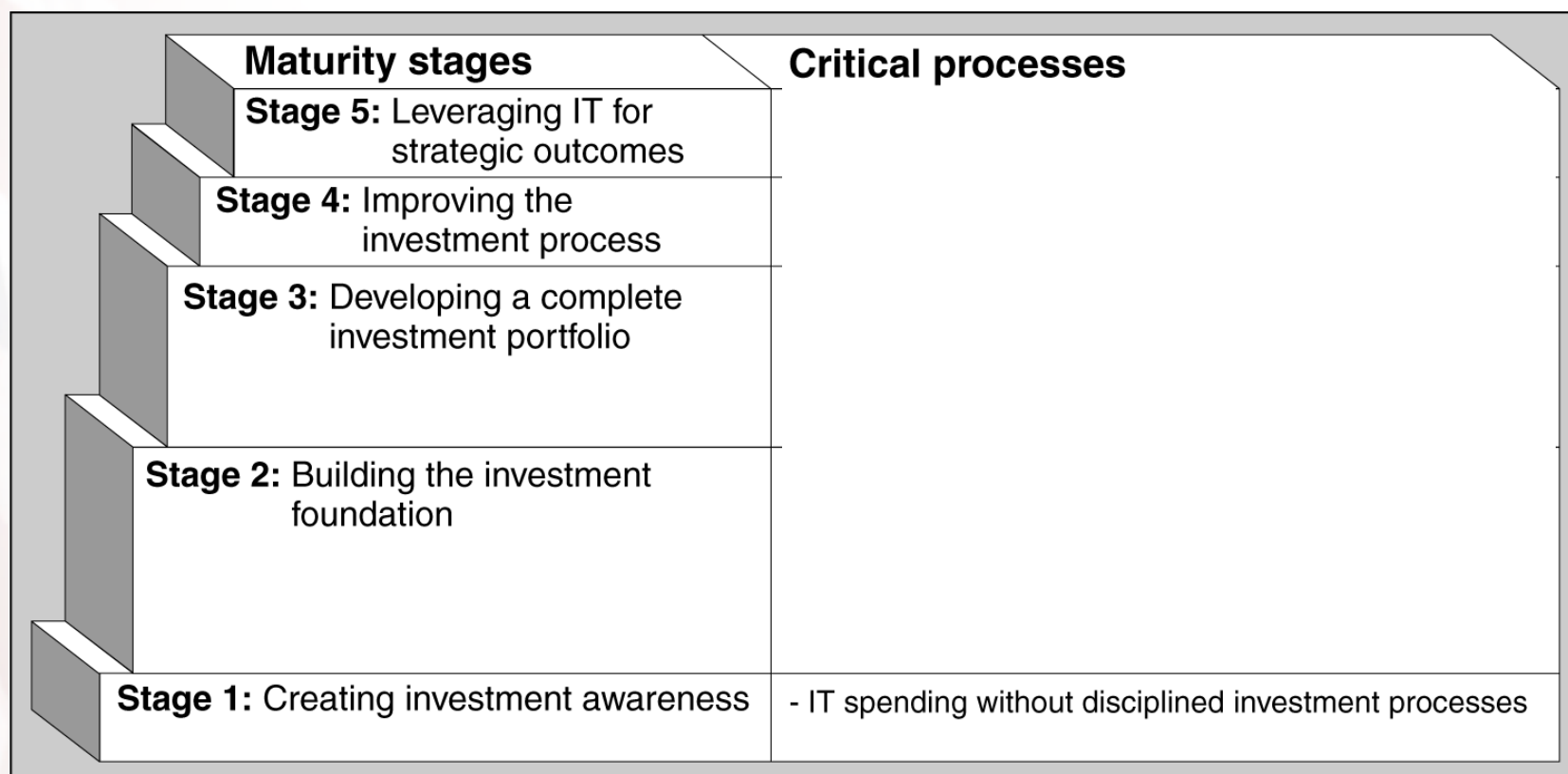
- GAO guidance for conducting assessments
- Agency use for conducting self-assessments
  - Static assessment of maturity
  - Measure progress over time
- Provide framework for understanding relationship among processes
  - Implement using techniques that work for specific agency
    - Being used from GAO to Interior

# IT Investment Management Framework V1.1



Source: GAO.

# IT Investment Management Framework V1.1



Source: GAO.



# IT Investment Management Framework V1.1

Maturity stages	Critical processes
<b>Stage 5:</b> Leveraging IT for strategic outcomes	
<b>Stage 4:</b> Improving the investment process	
<b>Stage 3:</b> Developing a complete investment portfolio	
<b>Stage 2:</b> Building the investment foundation	<ul style="list-style-type: none"> <li>- Instituting the investment board</li> <li>- Meeting business needs</li> <li>- Selecting an investment</li> <li>- Providing investment oversight</li> <li>- Capturing investment information</li> </ul>
<b>Stage 1:</b> Creating investment awareness	<ul style="list-style-type: none"> <li>- IT spending without disciplined investment processes</li> </ul>

Source: GAO.

# IT Investment Management Framework V1.1

Maturity stages	Critical processes
<b>Stage 5:</b> Leveraging IT for strategic outcomes	
<b>Stage 4:</b> Improving the investment process	
<b>Stage 3:</b> Developing a complete investment portfolio	<ul style="list-style-type: none"> <li>- Defining the portfolio criteria</li> <li>- Creating the portfolio</li> <li>- Evaluating the portfolio</li> <li>- Conducting postimplementation reviews</li> </ul>
<b>Stage 2:</b> Building the investment foundation	<ul style="list-style-type: none"> <li>- Instituting the investment board</li> <li>- Meeting business needs</li> <li>- Selecting an investment</li> <li>- Providing investment oversight</li> <li>- Capturing investment information</li> </ul>
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Source: GAO.

# IT Investment Management Framework V1.1

Maturity stages	Critical processes
<b>Stage 5:</b> Leveraging IT for strategic outcomes	
<b>Stage 4:</b> Improving the investment process	<ul style="list-style-type: none"> <li>- Improving the portfolio's performance</li> <li>- Managing the succession of information systems</li> </ul>
<b>Stage 3:</b> Developing a complete investment portfolio	<ul style="list-style-type: none"> <li>- Defining the portfolio criteria</li> <li>- Creating the portfolio</li> <li>- Evaluating the portfolio</li> <li>- Conducting postimplementation reviews</li> </ul>
<b>Stage 2:</b> Building the investment foundation	<ul style="list-style-type: none"> <li>- Instituting the investment board</li> <li>- Meeting business needs</li> <li>- Selecting an investment</li> <li>- Providing investment oversight</li> <li>- Capturing investment information</li> </ul>
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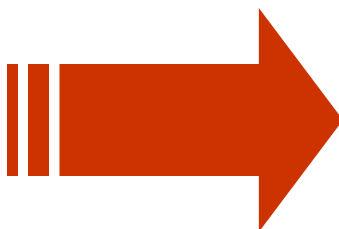
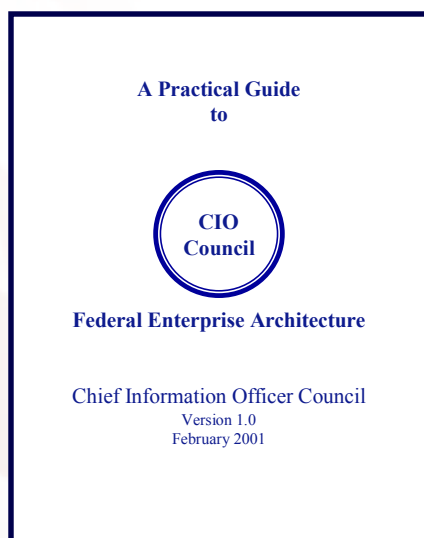
# IT Investment Management Framework V1.1

Maturity stages	Critical processes
<b>Stage 5:</b> Leveraging IT for strategic outcomes	<ul style="list-style-type: none"> <li>- Optimizing the investment process</li> <li>- Using IT to drive strategic business change</li> </ul>
<b>Stage 4:</b> Improving the investment process	<ul style="list-style-type: none"> <li>- Improving the portfolio's performance</li> <li>- Managing the succession of information systems</li> </ul>
<b>Stage 3:</b> Developing a complete investment portfolio	<ul style="list-style-type: none"> <li>- Defining the portfolio criteria</li> <li>- Creating the portfolio</li> <li>- Evaluating the portfolio</li> <li>- Conducting postimplementation reviews</li> </ul>
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Source: GAO.

# EA Management: An Evolving Discipline

CIO Council practical guide GAO EAMMF Version 1.0 for EA management



STAGE	CORE ELEMENTS			
	Demonstrates Commitment	Provides Capability to Meet Commitment	Demonstrates Satisfaction of Commitment	Verifies Satisfaction of Commitment
<b>Stage 5: Leveraging the EA for Managing Change</b> <small>(includes everything in Stage 4)</small>	Written/approved policy exists for EA maintenance		<ul style="list-style-type: none"> <li>Either EA steering committee, investment review board, or agency head has approved EA</li> </ul>	<ul style="list-style-type: none"> <li>Metrics exist for measuring EA benefits</li> </ul>
<b>Stage 4: Completing Architecture Products</b> <small>(includes everything in Stage 3)</small>	Written/approved policy exists for information technology investment compliance with EA		<b>EA products</b> <ul style="list-style-type: none"> <li>describe enterprise's business—and the data, applications, and technology that support it</li> <li>describe "as is" environment, "to be" environment, and sequencing plan</li> </ul> Agency chief information officer has approved EA	
<b>Stage 3: Developing Architecture Products</b> <small>(includes everything in Stage 2)</small>	Written/approved policy exists for EA development	EA products are under configuration management	<b>EA products</b> <ul style="list-style-type: none"> <li>describe or will describe enterprise's business—and the data, applications, and technology that support it</li> <li>describe or will describe "as is" environment, "to be" environment, and sequencing plan</li> </ul> EA scope is enterprise-focused	
<b>Stage 2: Building the EA Management Foundation</b>	Committee or group representing the enterprise is responsible for directing, overseeing, and/or approving EA	Program office responsible for EA development exists Chief architect exists EA being developed using a framework and automated tool	<b>EA plans</b> <ul style="list-style-type: none"> <li>call for describing enterprise in terms of business, data, applications, or technology</li> <li>call for describing "as is" environment, "to be" environment, or sequencing plan</li> </ul>	
<b>Stage 1: Creating EA Awareness</b>	Agency is aware of EA requirements			

# Use of EAMMF

## Purpose

- *Benchmark for assessment*
- *Roadmap for improvement*

## Audience

- *Internal stakeholders are the agency senior executives*
- *External stakeholders are those with agency oversight responsibilities*

agency head  
CIO  
chief architect

parent departments  
OMB  
congressional committees  
independent audit and  
evaluation organizations

# Enterprise Architecture Management Maturity Framework



GAO

Accountability \* Integrity \* Reliability

	Stage 1: Creating EA awareness	Stage 2: Building the EA management foundation	Stage 3: Developing EA products	Stage 4: Completing EA products	Stage 5: Leveraging the EA to manage change
Attribute 1: Demonstrates commitment		Adequate resources exist. Committee or group representing the enterprise is responsible for directing, overseeing, or approving EA.	Written and approved organization policy exists for EA development.	Written and approved organization policy exists for EA maintenance.	Written and approved organization policy exists for IT investment compliance with EA.
Attribute 2: Provides capability to meet commitment		Program office responsible for EA development and maintenance exists. Chief architect exists. EA being developed using a framework, methodology, and automated tool.	EA products are under configuration management.	EA products and management processes undergo independent verification and validation.	Process exists to formally manage EA change. EA is integral component of IT investment management process.
Attribute 3: Demonstrates satisfaction of commitment		EA plans call for describing both the "as-is" and the "to-be" environments of the enterprise, as well as a sequencing plan for transitioning from the "as-is" to the "to-be." EA plans call for describing both the "as-is" and the "to-be" environments in terms of business, performance, information/data, application/service, and technology. EA plans call for business, performance, information/data, service, and technology descriptions to address security.	EA products describe or will describe both the "as-is" and the "to-be" environments of the enterprise, as well as a sequencing plan for transitioning from the "as-is" to the "to-be." Both the "as-is" and the "to-be" environments are described or will be described in terms of business, performance, information/data, application/service, and technology. Business, performance, information/data, application/service, and technology descriptions address or will address security.	EA products describe both the "as-is" and the "to-be" environments of the enterprise, as well as a sequencing plan for transitioning from the "as-is" to the "to-be." Both the "as-is" and the "to-be" environments are described in terms of business, performance, information/data, application/service, and technology. Business, performance, information/data, application/service, and technology descriptions address security. Organization CIO has approved current version of EA. Committee or group representing the enterprise or the investment review board has approved current version of EA.	EA products are periodically updated. IT investments comply with EA. Organization head has approved current version of EA.
Attribute 4: Verifies satisfaction of commitment		EA plans call for developing metrics for measuring EA progress, quality, compliance, and return on investment.	Progress against EA plans is measured and reported.	Quality of EA products is measured and reported.	Return on EA investment is measured and reported. Compliance with EA is measured and reported.

Source: GAO.

Note: each stage includes all elements of previous stages.

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# The Five Stages of the EAMMF

- Stage 1 – Creating EA awareness
- Stage 2 – Building the EA management foundation
- Stage 3 – Developing EA products
- Stage 4 – Completing EA products
- Stage 5 – Leveraging EA to manage change



Stage 2: Building the EA management foundation		
	Stage 1	
Attribute 1: Demonstrates commitment		Adequate resources exist. Committee or group representing the enterprise is responsible for directing, overseeing, or approving EA.
Attribute 2: Provides capability to meet commitment		Program office responsible for EA development and maintenance exists. Chief architect exists. EA being developed using a framework, methodology, and automated tool.
Attribute 3: Demonstrates satisfaction of commitment		EA plans call for describing both the “as-is” and the “to-be” environments of the enterprise, as well as a sequencing plan for transitioning from the “as-is” to the “to-be.” EA plans call for describing both the “as-is” and the “to-be” environments in terms of business, performance, information/data, application/service, and technology. EA plans call for business, performance, information/data, service, and technology descriptions to address security.
Attribute 4: Verifies satisfaction of commitment		EA plans call for developing metrics for measuring EA progress, quality, compliance, and return on investment.

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## Stage 3: Developing EA products

	Stage 1	Stage 2	
Attribute 1: Demonstrates commitment			Written and approved organization policy exists for EA development.
Attribute 2: Provides capability to meet commitment			EA products are under configuration management.
Attribute 3: Demonstrates satisfaction of commitment			EA products describe or will describe both the “as-is” and the “to-be” environments of the enterprise, as well as a sequencing plan for transitioning from the “as-is” to the “to-be.” Both the “as-is” and the “to-be” environments are described or will be described in terms of business, performance, information/data, application/service, and technology. Business, performance, information/data, application/service, and technology descriptions address or will address security.
Attribute 4: Verifies satisfaction of commitment			Progress against EA plans is measured and reported.

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	Stage 1	Stage 2	Stage 3	Stage 4: Completing EA products
Attribute 1: Demonstrates commitment				Written and approved organization policy exists for EA maintenance.
Attribute 2: Provides capability to meet commitment				EA products and management processes undergo independent verification and validation.
Attribute 3: Demonstrates satisfaction of commitment				EA products describe both the “as-is” and the “to-be” environments of the enterprise, as well as a sequencing plan for transitioning from the “as-is” to the “to-be.” Both the “as-is” and the “to-be” environments are described in terms of business, performance, information/data, application/service, and technology. Business, performance, information/data, application/service, and technology descriptions address security. Organization CIO has approved current version of EA. Committee or group representing the enterprise or the investment review board has approved current version of EA.
Attribute 4: Verifies satisfaction of commitment				Quality of EA products is measured and reported.

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Stage 5: Leveraging the EA to manage change				
	Stage 1	Stage 2	Stage 3	Stage 4
Attribute 1: Demonstrates commitment				
Attribute 2: Provides capability to meet commitment				
Attribute 3: Demonstrates satisfaction of commitment				
Attribute 4: Verifies satisfaction of commitment				

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**Alright, now finally, how are they integrated?**

## How is EA integrated into Version 1.1

- EA compliance (or waiver) should be required for investment
- EA may provide a foundation for the investment inventory expected by ITIM
- EA should provide a basis for portfolio management
- EA should provide a basis for succession management

# **Where Can You Find Investment Management in EAMMF?**

Stage 3: Developing EA products

**Attribute:** *Verifies satisfaction of commitment*

**Element:** **Progress against EA plans is measured and reported.**

To assist in attaining stated EA program goals and objectives, **an organization should understand and disclose its progress against plans**. As EA products emerge, their **content should be assessed against the plans to ensure that expectations are being met**. Based on this assessment, plans can be updated to reflect experience to date, while products can be revised to address plan changes. Deviations from expectations contained in plans should be analyzed to determine cause and impact, and appropriate action should be taken to address deviations.

*Reference: CIO Council Practical Guide, Section 8.2: Identify Where EA Program Expectations Are Not Being Met; Section 8.3: Take Appropriate Actions to Address Deviations; Section 8.4: Ensure Continuous Improvement*

			Business, performance, information technology descriptions address service, and security.
Attribute 4: Verifies satisfaction of commitment			Progress against EA plans is measured and reported.



Source: GAO.

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**Attribute:** *Demonstrates satisfaction of commitment*

**Element:** **Organization CIO has approved current version of EA;**

The current version of the organization's completed EA should be approved by the CIO. This approval is the first in a series of approvals intended to establish the EA as an institutionally endorsed change management and transformation tool.

*Reference: CIO Council Practical Guide, Section 5.4: Approve, Publish, and Disseminate EA Products*

**Element:** **Committee or group representing the enterprise or the investment review board has approved current version of EA.**

The current version of the organization's completed architecture should also **be approved either by the EA steering committee (or comparable body) or by the investment review board**. The approval by one or both of these bodies denotes institutional buy-in and thus facilitates the architecture's acceptance and use at all organizational levels as a change management and transformation tool.

*Reference: CIO Council Practical Guide, Section 5.4: Approve, Publish, and Disseminate EA Products*

				Organization CIO has approved current version of EA. Committee or group representing the enterprise or the investment review board has approved current version of EA.
Attribute 4: Verifies satisfaction of commitment				Quality of EA products is measured and reported.

Source: GAO.

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	Stage 1 Stage 2 Stage 3 Stage 4				Stage 5: Leveraging the EA to manage change
Attribute 1: Demonstrates commitment					Written and approved organization policy exists for IT investment compliance with EA.
Attribute 2: Provides capability to meet commitment					Process exists to formally manage EA change. EA is integral component of IT investment management process.
					EA products are periodically updated.

**Attribute:** *Provides capability to meet commitment*

**Element:** EA is integral component of IT investment management process.

An organization should recognize that **the EA is a critical frame of reference for making IT investment decisions. Using the EA when making investment decisions is important because the organization should approve only those investments that move the organization toward the target architecture, as defined in the sequencing plan. Our ITIM framework also addresses architecture within the context of ITIM's five stages of investment management maturity.**

*Reference: CIO Council Practical Guide, Section 6.1: Integrate the EA with Capital Planning and Investment Control and System Lifecycle Processes*

*Attribute: Demonstrates satisfaction of commitment*

**Element: IT investments comply with EA.**

**An organization's IT investments should be aligned and comply with the applicable components (e.g., business, information/data, and technical) of the current version of the EA**, and should not be selected and approved under the organization's capital planning and investment control process unless compliance is documented by the investment sponsor and substantiated by the architect assessment team. **Moreover, this compliance is not a one-time event, but rather an integral part of the investment control process and the system life cycle management process.** Exceptions to investments being architecturally compliant should be made only on the basis of compelling analytical justifications and should be documented in a waiver to the architecture. These waivers then form the basis for articulating change requests under the formal process for introducing change in the EA.

*Reference: CIO Council Practical Guide, Section 6.1: Integrate the EA with Capital Planning and Investment Control and System Lifecycle Processes*

Attribute 3: Demonstrates satisfaction of commitment					EA pro... periodically updated. IT investments comply with EA. Organization head has approved current version of EA.
Attribute 4: Verifies satisfaction of commitment					Return on EA investment is measured and reported. Compliance with EA is measured and reported.

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**Attribute:** *Verifies satisfaction of commitment*

**Element:** **Return on EA investment is measured and reported.**

**The EA is a strategic asset and, as such, should be viewed as an investment in the future. Like any investment, the EA should produce a return (i.e., a set of benefits), and this return on investment should be measured and reported in relation to costs.** Measuring return on investment is important to ensure that expected benefits from the EA are realized and to share this information with executive decision-makers, who can then take corrective action to address deviations from expectations. To accomplish this, metrics need to be developed (such as costs avoided through elimination of duplicative or redundant investments) and processes need to be established to collect and report these data.

*Reference: CIO Council Practical Guide, Section 8.2: Identify Where EA Program Expectations Are Not Being Met; Section 8.3: Take Appropriate Actions to Address Deviations; Section 8.4: Ensure Continuous Improvement*

satisfaction or commitment					
Attribute 4: Verifies satisfaction of commitment					Return on EA investment is measured and reported. Compliance with EA is measured and reported.

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# Questions?

Me too